

1. An electrochemical cell system comprising:

an electrochemical cell;

an energy source configured for providing a quantity of energy to said electrochemical cell;

5 a sensing apparatus in operable communication with a gas output from said electrochemical cell, said sensing apparatus provides an output signal indicating a parameter of said gas output; and

a computer in operable communication with said sensing apparatus, said computer including

10 a memory device configured to store a first operational parameter, and a processor configured to receive a digital representation of said output signal and said first operational parameter, said processor compares said digital representation of said output signal to said first operational parameter for regulating said quantity of energy provided to said electrochemical cell.

2. The electrochemical cell system of claim 1, wherein said parameter of said gas output is a pressure of said gas output.

3. The electrochemical cell system of claim 2, wherein said first operational parameter indicates a desired gas output pressure, said memory device is further configured to store a second operational parameter, said second operational parameter indicates a pressure variance limit relative to said desired gas output pressure; and

5 wherein said processor provides an increase signal to said energy source when said pressure of said gas output is less than said desired gas output pressure by an amount greater than said pressure variance limit.

4. The electrochemical cell system of claim 3, wherein said processor provides a decrease signal to said energy source when said pressure of said gas output exceeds said desired gas output pressure by an amount greater than said pressure variance limit.

5. The electrochemical cell system of claim 2, wherein said first operational parameter indicates an upper limit set point for gas output pressure, and said processor provides a decrease signal to said energy source when said pressure of said gas output exceeds said upper limit set point for gas output pressure.

6. The electrochemical cell system of claim 2, wherein said first operational parameter indicates a lower limit set point for gas output pressure, and said processor provides an increase signal to said energy source when said pressure of said gas output is less than said upper limit set point for gas output pressure.

7. The electrochemical cell system of claim 2, wherein said first operational parameter indicates an expected increase in gas output pressure over a period of time, said processor monitors said output signal over said period of time to determine a change in said gas output pressure and provides an interrupt signal to said energy source if said change in
5 said gas output pressure is less than said expected increase.

8. The electrochemical cell system of claim 2, wherein said first operational parameter indicates an expected increase in gas output pressure over a period of time, said processor monitors said output signal over said period of time to determine a change in said gas output pressure, and said processor provides a signal to an alarm if said change in said gas output pressure is less than said expected increase.

9. The electrochemical cell system of claim 7 wherein said processor determines said first operational parameter based on said quantity of energy to said electrochemical cell.

10. The electrochemical cell system of claim 9 wherein a signal indicating said quantity of energy is provided to said processor as feedback from said energy source.

11. The electrochemical cell system of claim 1, wherein said processor and said non-volatile memory device are operably coupled to a remote computer, said remote computer is configured to provide said first operational parameter to said non-volatile memory.

12. The electrochemical cell system of claim 1 wherein said processor determines said first operational parameter based on feedback from said energy source.

13. A method for controlling a gas output from an electrochemical cell electrically connected to an electrical source, the method comprising:

sensing a parameter of said gas output to create a sensed signal indicating said parameter;

5 retrieving a predetermined value and a predetermined variance from a memory device;

comparing said sensed signal to said predetermined value;

providing a signal to said electrical source when said sensed signal differs from said predetermined value by an amount greater than said predetermined variance; and

10 adjusting an output of said electrical source in response to said signal to said electrical source.

14. The method of claim 10, wherein said parameter is a pressure of said gas output, and said predetermined value indicates a predetermined pressure.

15. The method of claim 10, further comprising:

providing said predetermined value and said predetermined variance to said memory device from a remote computer.

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16. The method of claim 10, further comprising:
adjusting at least one of said predetermined value and said predetermined variance based on feedback from said electrical source.

17. A method of controlling a gas output from an electrochemical cell electrically connected to an electrical source, the method comprising:
sensing a parameter of said gas output to create a sensed signal indicating said parameter;
retrieving a predetermined upper value from a memory device;
comparing said sensed signal to said predetermined upper value;
providing a lower signal to said electrical source when said sensed signal is greater than said predetermined upper value; and
lowering an output of said electrical source in response to said lower signal.

18. The method of claim 17, further comprising:
retrieving a predetermined lower value from a memory device;
comparing said sensed signal to said predetermined lower value;
providing an increase signal to said electrical source when said sensed signal is less than said predetermined lower value; and
increasing an output of said electrical source in response to said increase signal.

19. The method of claim 18, wherein said parameter is a pressure of said gas output, said predetermined upper value indicates an upper limit set point for gas output pressure, and said predetermined lower value indicates a lower limit set point for gas output pressure.

20. The method of claim 18, further comprising:
providing said predetermined upper value and said predetermined lower value to said memory device from a remote computer.

21. The method of claim 18, further comprising:
adjusting at least one of said predetermined upper value and said predetermined lower value based on feedback from said electrical source.

22. A method of controlling a gas output from an electrochemical cell electrically connected to an electrical source, the method comprising:
sensing a parameter of said gas output to create a sensed signal indicating said parameter;
5 retrieving a predetermined value from a memory device, said predetermined value indicates an expected increase in said parameter over a period of time;
monitoring said sensed signal over said period of time to determine an increase in said parameter;
providing a signal to one or more of an alarm and said electrical source when
10 said increase in said parameter is less than said expected increase in said parameter.

23. The method of claim 22, further comprising:
interrupting an output of said electrical source in response to said signal.

24. The method of claim 22, further comprising:
activating an alarm in response to said signal.

25. The method of claim 22, wherein said parameter is a pressure of said gas
output.

26. The method of claim 22, further comprising:
providing said predetermined value to said memory device from a remote
computer.

27. The method of claim 22, further comprising:
adjusting said predetermined value based on feedback from said electrical
source.

28. The method of claim 22, further comprising:
determining said predetermined value based on said quantity of energy to said
electrochemical cell.

29. A storage medium encoded with machine-readable program instructions for controlling a gas output from an electrochemical cell electrically connected to an electrical source, the storage medium including instructions for causing a machine to implement a method comprising:

5 receiving a sensed signal indicating a parameter of said gas output;
retrieving a predetermined value and a predetermined variance from a

memory device;

comparing said sensed signal to said predetermined value; and
providing a signal to said electrical source when said sensed signal differs
10 from said predetermined value by an amount greater than said predetermined variance.

30. The storage medium of claim 29, wherein said parameter is a pressure of said gas output, and said predetermined value indicates a predetermined pressure.

31. The storage medium of claim 29, further comprising instructions for causing a computer to implement:

receiving said predetermined value and said predetermined variance from a remote computer.

32. The storage medium of claim 29, further comprising instructions for causing a computer to implement:

adjusting at least one of said predetermined value and said predetermined variance based on feedback from said electrical source.

33. A storage medium encoded with machine-readable program instructions for controlling a gas output from an electrochemical cell electrically connected to an electrical source, the storage medium including instructions for causing a machine to implement a method comprising:

5 receiving a sensed signal indicating a parameter of said gas output;
retrieving a predetermined upper value from a memory device;
comparing said sensed signal to said predetermined upper value; and
providing a lower signal to said electrical source when said sensed signal is greater than said predetermined upper value.

34. The storage medium of claim 33, further comprising instructions for causing a computer to implement:

5 retrieving a predetermined lower value from a memory device;
comparing said sensed signal to said predetermined lower value; and
providing an increase signal to said electrical source when said sensed signal is less than said predetermined lower value.

35. The storage medium of claim 34, wherein said parameter is a pressure of said gas output, said predetermined upper value indicates an upper limit set point for gas output pressure, and said predetermined lower value indicates a lower limit set point for gas output pressure.

36. The storage medium of claim 34, further comprising instructions for causing a computer to implement:

receiving said predetermined upper value from a remote computer.

37. The storage medium of claim 34, further comprising instructions for causing a computer to implement:

adjusting at least one of said predetermined upper value and said predetermined lower value based on feedback from said electrical source.

38. A storage medium encoded with machine-readable program instructions for controlling a gas output from an electrochemical cell electrically connected to an electrical source, the storage medium including instructions for causing a machine to implement a method comprising:

receiving a sensed signal indicating a parameter of said gas output;
retrieving a predetermined value from a memory device, said predetermined value indicates an expected increase in said parameter over a period of time;

monitoring said sensed signal over said period of time to determine an increase in said parameter;

providing a signal to one or more of an alarm and said electrical source when said increase in said parameter is less than said expected increase in said parameter.

39. The storage medium of claim 38, wherein said parameter is a pressure of said gas output.

40. The storage medium of claim 38, instructions for causing a computer to implement:

receiving said predetermined value from a remote computer.

41. The storage medium of claim 38, instructions for causing a computer to implement:

adjusting said predetermined value based on feedback from said electrical source.

42. The storage medium of claim 38, instructions for causing a computer to implement:

determining said predetermined value based on said quantity of energy to said electrochemical cell.